FIVE NEW OREGON THYSANOPTERA

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In the course of the writer's investigations on the taxonomy of Oregon Thysanoptera for his Ph.D. thesis, five thrips were found to be new after comparison with material in the extensive collection of the late Dudley Moulton.

Aeolothrips fasciatus justiceae Post, new subspecies

(Fig. 1)

The new subspecies has the same general form and color as the nominate subspecies except for the color of the antennal segments by which it is easily distinguished. Subspecies *justiceae* (Fig. 1) has the first antennal segment light brown, much lighter than the head, and segments II and III clear white except a weak shading of brown at the extreme apical end of segment III. *A. fasciatus fasciatus* (Linnaeus) (fig. 2) has the antennal segments brown, about the color of the head, except the tip of II and basal ⅞ of III which are a pale yellowish-brown.

Holotype female taken at CASCADE LOCKS, HOOD RIVER COUNTY, OREGON, July 4, 1944, collected by Leah Justice Post in home from bouquet of cultivated flowers, deposited in Moulton collection at the California Academy of Sciences. Paratype female Portland, Oregon, July 14, 1940, collected by Joe Schuh from insect borer tunnel in lupine stem, deposited in author's collection at NDSU. Eight female paratypes, in poor condition, Troutdale, Multinomah County, Oregon, July 30, 1940, collected by Joe Schuh on gladiolus, deposited in Oregon State College Collection.

The range of *A. fasciatus* is nearly world-wide; it occurs throughout North America from Hudson Bay to Florida and Mexico. The subspecies *justiceae* has been recorded in a limited area from three localities in northeastern Oregon. Based on the experience, opinion, and advice of Dudley Moulton it is considered a local population which closely resembles *fasciatus* but is distinct enough to be named a subspecies and is so described.

The author is naming this subspecies after his wife, Leah Justice Post, who continued to collect thrips while the writer was in military service.

Chirothrips moultoni Post, new species.

(Fig. 3)

Holotype female: Head, thorax and the last two abdominal segments blackish brown, abdominal segments brown shading darker towards apical end; antennae and legs blackish brown with third segment a shade lighter and fore tarsi yellow, middle and hind tarsi brown; fore wings uniformly

brown with a cleared area near base, lower wings brown only at extreme base otherwise clear. *Measurements:* Total length with abdomen distended 1.89 mm.; head length 0.133 mm.; width across cheeks 0.118 mm.; length of cheeks 0.036 mm.; length of head projection anterior to eyes 0.018 mm.; thorax median length 0.226 mm.; width near anterior margin 0.140 mm.; near posterior margin including coxae 0.260 mm.; inner setae on posterior angles of prothorax, 43, outer 43 microns. *Head:* clearly longer than wide and distinctly produced in front of eyes, this projection from eyes to outer bases of antennae somewhat less than half the length of cheeks; broadly angular in front; eyes occupying approximately two-thirds the side of head; posterior ocelli placed contiguous with posterior, inner angles of eyes; ocellar setae placed directly on a line passing through anterior ocellus; with only two minor setae anterior to ocelli; antenna with second segment produced, with blunt, not pointed tip and without terminal setae; segments III to VI broadly ovate, with simple sense cones. Thorax and body typical of the genus, with fore legs only slightly enlarged; fore wings with 3–4 basal, 1 median and 2 apical setae, lower vein with 8 widely spaced setae. Terminal abdominal segments pointed much as in *aculeatus*.

Holotype female and one female paratype taken at PITBLADO RANCH, THREE MILES SOUTH OF HOOD RIVER, HOOD RIVER COUNTY, OREGON, January 31, 1946, by the writer from dried blossoms of pigweed, *Amaranthe*. Holotype in Moulton Collection at the California Academy of Sciences. Paratype in Oregon State College Collection.

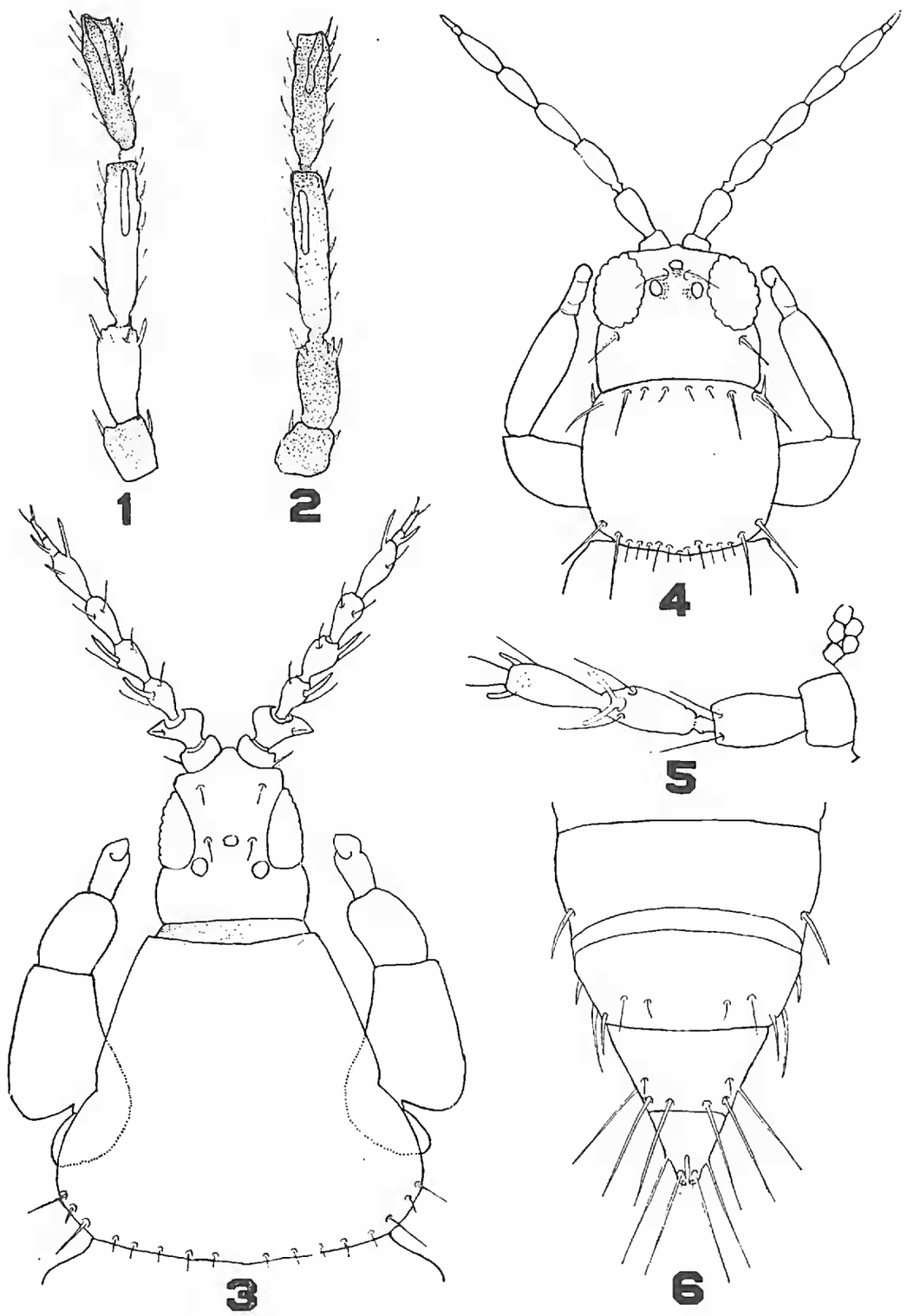
This species is most closely related to *C. productus* Hood known from North Dakota but is immediately separated by its darker color and the lesser number of minor setae anterior to ocelli.

This species is named after the late Dudley Moulton with whom the writer spent ten days in March of 1946 examining every slide in his collection of more than 44,000 specimens for Oregon records. Without Mr. Mouton's assistance, positive identification of many species would have been impossible.

Frankliniella terminalis Post, new species

(Figs. 4, 5 and 6)

Holotype female– Head and thorax light orange yellow, abdominal segments I–VIII light brownish yellow, shading from yellow at base to light brownish yellow, segments IX and X rather abruptly blackish brown; antennal segment I brownish yellow, darker than head, II blackish brown at sides, lighter through median portion, III mostly yellow shading to dark brown in apical third, IV and V yellowish in basal third, otherwise dark brown, VI–VIII blackish brown; legs nearly clear yellow; wings weakly shaded yellow; prominent setae dark. *Measurements:* Total body



Explanation of Plate

Fig. 1—Antennal segments I–IV *Aeolothrips faschiatus justiceae* Post. Fig. 2, Antennal segments I–IV *Aeolothrips fasciatus fasciatus* (L.). Fig. 3, Head and prothorax of *Chirothrips moultoni* Post. Figs. 4–6, Head and prothorax, antennal segments I–IV, and terminal abdominal segments of *Frankliniella terminalis* Post.

length with abdomen distended 1.44 mm.; head length 0.117 mm.; width 0.147 mm.; antennal segments length (width): II, 36(23); III, 53(16); IV, 43(16); V, 35(15); VI, 46(16); VII, 10; VIII, 16 microns; length of setae, interocellars 23, postoculars 20; on anterior margin and angles of pronotum 43, on posterior angles 56; on ninth abdominal segment median 86, midlateral and lateral 100; median pair on tenth segment 110, lateral 93 microns. *Head:* somewhat wider than long, cheeks nearly straight, slightly constructed posteriorly; interocellar and postocular setae prominent, the interoccelars placed on a line connecting anterior with posterior ocelli, their interval 30 microns; antennae slender, segment II slender, the prominent setae placed immediately at apical end as in *cephalica*, the segment not drawn out or overhanging base of third segment; pedicel of segment III with a distinct but weak angulation, apical end of third segment briefly constricted; segment VIII clearly longer than VII. Legs normal, inner, apical inner margin of hind tibiae with a series of about five short, dark setae; fore vein of fore wing with 20, lower vein with 17 setae. Abdomen normal, posterior margin of eighth segment with comb; pronotum with four minor setae between antero-marginals.

Holotype female taken at BRUCE STATION, ELEVEN MILES SOUTH OF CORVALLIS, BENTON COUNTY, OREGON, February 17, 1946, collected by Leah J. and R. L. Post from galls of beaked willow gall, *Phytophaga rigidae* O. S. via Berlese funnel, deposited in Moulton Collection at California Academy of Sciences. Two paratypes taken at Corvallis, Benton County, Oregon, December 2, 1945, collected by Leah J. Post and the writer from moss on oak via Berlese funnel. Paratypes in Oregon State College collection and writer's collection at NDSU.

This species is placed in the *tritici* section of the *tritici-cephalica* group. The angulation on the pedicel of segment III is weak, but the prominent setae on segment II are at the extreme apical end of the segment as in *cephalica*. It is most closely related to *bicolor* Moulton from Brazil but separated from that species by the darker colored basal segments of the antennae and the absence of a comb on the eighth abdominal segment. *F. extremitata* Hood, also with darkened terminal abdominal segments, has much longer antennae, the third segment being 75 microns, and there are only two minor setae on the anterior margin of the pronotum between the antero-marginals. There are four such minor setae in the present new species.

The terms "*tritici* section" and "*tritici-cephalica* group" are based on terms that Moulton (1948) has employed in a revision of the genus *Frankliniella*.

Toxonothrips gramineae fuscus Post, new subspecies

(Fig. 7)

Length 1.6 mm. General color brown, except antennal segment III and tibiae and tarsi which are yellow.

An examination of the holotype of *Toxonothrips gramineae* Moulton in the Moulton collection shows the third and fourth antennal segments nearly clear yellow and segment V yellowish at base and shading to light brown apically; legs are mostly brown with fore tibiae yellowish but shaded on outer margin, middle and hind tibiae brown but lighter at apical ends. In this new subspecies only antennal segment III is yellow, faintly shaded at the sides and IV is lighter at extreme base; femora are brownish yellow and all tibiae and tarsi nearly clear yellow.

Holotype female and one paratype collected ONE MILE EAST OF TIDEWATER, LINCOLN COUNTY, OREGON, January 1, 1946, collected by Leah J. and R. L. Post on dead flowers of red sorrel, *Rumex acetosella,* holotype in Moulton Collection at the California Academy of Sciences. Paratype deposited at the Oregon State College Collection.

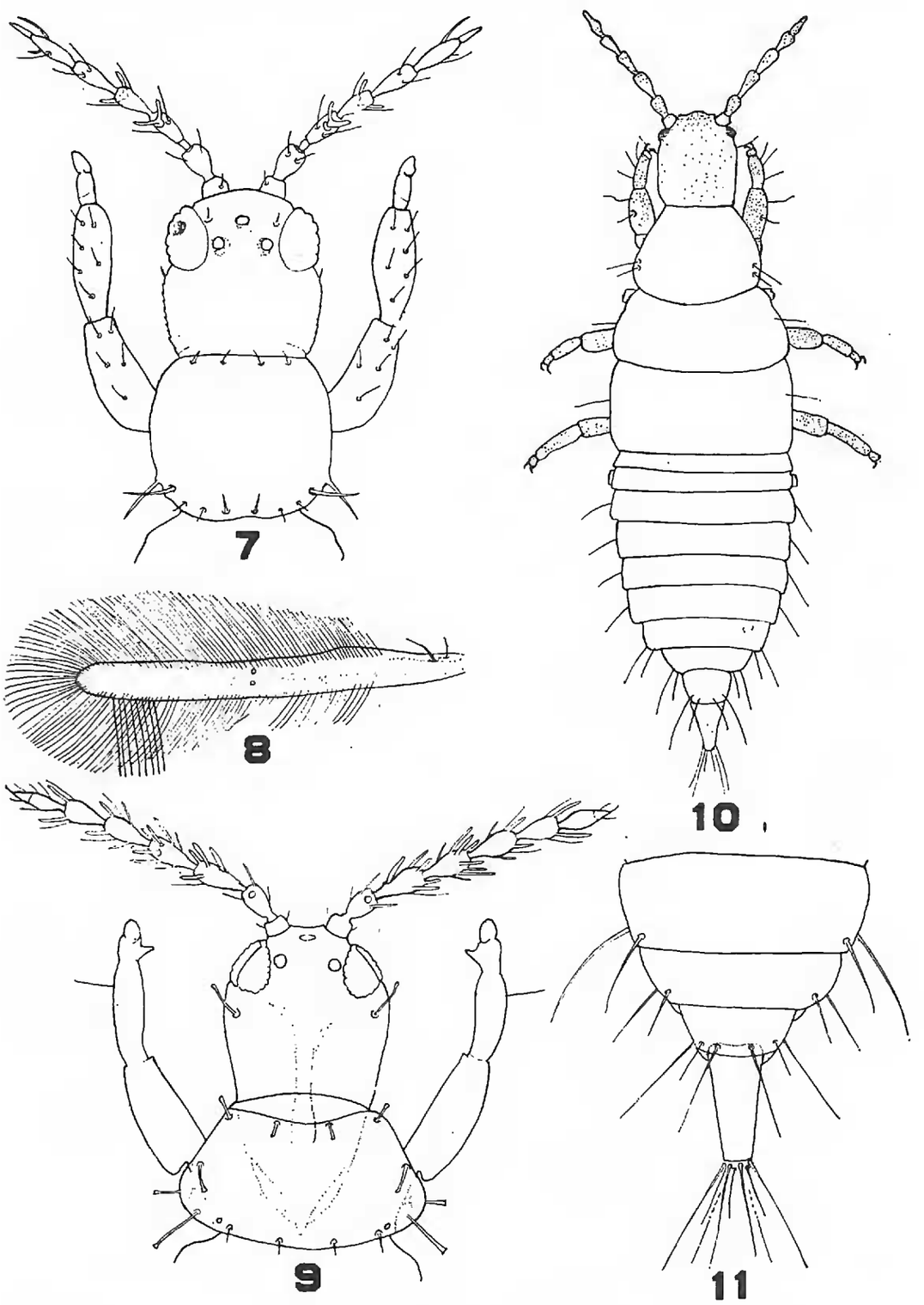
The genus *Toxonothrips* Moulton is monotypic with *T. gramineae* Moulton the type of the genus. Prior to the Oregon records only three specimens of the type series were known. These were taken from grass sweeping at Lake Tahoe, California in July 1926. Mr. Moulton who examined the Oregon specimens stated that they were very close to his *gramineae* and that a local distinct Oregon population apparently exists and should be considered a subspecies.

Bolothrips lativerticis Post, new species

(Figs. 8, 9, 10, and 11)

Holotype female: Total length 2.8 mm. Color blackish brown, nearly black including legs, with abdominal segments one to five somewhat lighter; antennal segments I, II, and V–VIII blackish brown, III yellow in basal half, IV and V yellow in basal fifth; wings lightly washed with brown. All setae without color. *Measurements:* Head length 0.323 mm., width 0.315 mm.; prothorax, median length of pronotum 0.22., width including coxae 0.455 mm.; tube length 0.22 mm., width at base 0.095 mm., at tip 0.044 mm. Antennal segments length (width): II, 76 (43); III, 76 (46); IV, 86 (50); V, 80 (40); VI, 76 (40); VII–VIII, 100 microns; length of setae: postoculars 75; on anterior margin or pronotum, present but length undetermined, on anterior angles 40; inner on posterior angles 86, outer 75; median on ninth abdominal segment 166, on posterior angles 216; terminal setae 200 microns. *Head:* approximately as long as greatest width behind eyes; forehead flattened in front between widely separated basal antennal segments, this measurement 60 microns, cheeks swollen behind eyes, then evenly narrowed to base; eyes relatively small, slightly

flattened on outer margin, broadly angular on inner margin, produced only a little on ventral surface; mouth cone broad but narrowed before end where it extends to posterior margin of prosternum; antennae 1.8 times longer than head, segments III to V broadly club-shaped, VII and



EXPLANATION OF PLATE

Fig. 7—Head and prothorax of *Toxonothrips gramineae fuscus* Post. Figs. 8–11, Forewing, head and prothorax, larva, and terminal abdominal segments of *Bolothrips lativerticis* Post.

VIII united as a unit, segment III with three stout, blunt sense cones, one on inner and two on outer apical margin; segment IV with four, two on inner and two on outer margin; postocular setae well developed, with blunt tips and placed well back from eyes, rather close to side margins of head. *Thorax:* prothorax transverse, weakly emarginate in front, all normal setae developed, with blunt tips; pterothorax only slightly wider than prothorax, abdomen normal, terga without sigmoid setae; tube 0.7 as long as head, 2.3 times longer than width at base; terminal setae approximately as long as tube. Fore femora not greatly enlarged, fore tarsus with a strong, nearly straight and moderately sharp tooth. Wings of even width, fore pair with 8–13 double fringes.

Larvae with vertex, antennae and legs dark brown, otherwise the entire head and body with deep red pigmentations.

Holotype female, three eggs, and 21 larvae taken at HERMAN CREEK, NEAR CASCADE LOCKS, HOOD RIVER COUNTY, OREGON, January 31, 1946, collected by the writer from hollow terminal twigs of elderberry, *Sambucus racemosa*. Holotype in Moulton Collection at the California Academy of Sciences. Paratype female and six larvae taken at Myrtle Creek, near Ophir, Curry County, Oregon, March 1, 1946, collected by R. L. Post from hollow terminal twigs of elderberry, *Sambucus*, in author's collection at NDSU. One paratype female, 42 larvae, and 10 prepupae, Corvallis, Benton County, March 23, 1946, collected by Leah J. and R. L. Post from stems and twigs of elderberry, *Sambucus*, via Berlese funnel, deposited in Oregon State College collection.

This species is distinct from other known species in the relatively short head, this being about as long as wide, and more especially by the greater width between the basal segments of antennae.

LITERATURE CITED

MOULTON, D.

1948. The genus Frankliniella Karny, with keys for the determination of species. Revista de Entomologia 19:55–114.

BOOK NOTICE

FOREST AND SHADE TREE ENTOMOLOGY. By Roger F. Anderson. John Wiley & Sons, Inc., New York and London, pp. viii + 428, 126 text figs. September 15, 1960. Price $8.50.

This attractive book is well suited as a text for courses in forest entomology and is an excellent manual for foresters and all who travel our forested areas. Section I, with eight chapters, deals with the basic aspects of entomology (structure, physiology, development, classification, ecology,